

WHAT IS CLAIMED IS:

1 1. A method for facilitating detection of a threat, the
2 method comprising:

3 i) operating a transmitter to transmit signals in the
4 direction of a plurality of cells to pan a scene
5 corresponding to said plurality of cells, at least some
6 cells corresponding to different ranges relative to the
7 transmitter;

8 ii) operating a detector to detect reflected signals
9 during an analysis period received from said plurality of
10 cells; and

11 iii) determining a threat reference threshold for the
12 analysis period as a function of the reflected signals
13 detected during the analysis period, said step of
14 determining a threat threshold including:

15 measuring detected reflected signals
16 corresponding to at least some of said plurality
17 of said cells to generate a measured signal value
18 for each particular one of said at least some
19 cells;

20 modifying the measured signal values
21 corresponding to some particular ones of said at
22 least some cells by a distance factor
23 corresponding to the distance the particular one
24 of the cells is from the transmitter to generate
25 a modified measured signal value for each of said
26 some particular ones of said cells; and

27 generating the threat reference
28 threshold as a function of at least some of the
29 modified measured signal values.

1 2. The method of claim 1, wherein generating the threat
2 reference threshold includes:
3 averaging the modified measured signal values
4 corresponding to a plurality of cells in which at least one
5 human being is located; and
6 and establishing said threat reference threshold
7 from the generated average.

1 3. The method of claim 2, further comprising:
2 comparing the modified measured signal values of
3 at least some cells to the threat reference threshold; and
4 signaling a threat when said comparison indicates
5 that the modified measured signal value of one of said at
6 least some cells exceeds said threat reference threshold.

1 4. The method of claim 3, wherein signaling a threat
2 includes:
3 displaying an image corresponding to said
4 plurality of cells on a display device; and
5 locating a visual marker on the portion of
6 the displayed image corresponding to each cell that has a
7 modified measured signal value that exceeds said threat
8 reference threshold.

1 5. The method of claim 4, wherein said step of displaying
2 an image includes:
3 operating a processor to generate a perspective
4 view of the plurality of cells, the perspective view
5 including:
6 preselected shapes used to indicate detected
7 information about different cells; and
8 cell distance information.

1 6. The method of claim 3, further comprising:
2 marking displayed cells having modified measured
3 signal values exceeding said threshold in a distinctive
4 manner on said display to distinguish them from displayed
5 cells which do not have modified measured signal values
6 exceeding said threat reference level.

1 7. The method of claim 6, wherein marking displayed cells
2 in a distinctive manner includes using a first display
3 color for cells having modified a measured signal value
4 exceeding said threat reference level and a second color
5 for cells which do not have a modified measured signal
6 value exceeding said threat reference level, said first
7 color being different from said second color.

1 8. The system of claim 7, further comprising:
2 receiving a friend indicator signal from a cell with a
3 modified measured signal value exceeding said threat
4 reference level; and
5 distinctively marking the cell corresponding to the
6 received friend indicator signal to indicate the presence
7 of a friend in the corresponding cell.

1 9. The method of claim 8, further comprising:
2 leaving cells which do not have a human presence blank
3 in said displayed image.

1 10. The method of claim 1,
2 wherein said transmitted signals are radar signals,
3 wherein each cell corresponds to a different
4 transmitter azimuth and range; and

5 wherein the method further comprises:
6 periodically repeating steps i, ii, and iii.

1 11. The method of claim 1, wherein said measured signal
2 values are energy values.

1 12. A system for detecting a threat located in one of a
2 plurality of areas corresponding to different locations,
3 the system comprising:

4 a transmitter that transmits radar signals in the
5 direction of said plurality of areas;

6 a detector which detects a reflected portion of
7 the signals, the detector measuring the energy in the
8 detected reflected portion of the signals corresponding to
9 each area, to generate a detected energy measurement for
10 each particular one of said areas;

11 means for modifying the detected energy
12 measurements corresponding to some areas by a distance
13 factor corresponding to the distance the area is from the
14 transmitter to generate a modified measured detected energy
15 value for each of said some areas;

16 means for generating a threat reference threshold
17 as a function of at least some of the modified measured
18 detected energy values; and.

19 a comparator for comparing at least some of the
20 modified detected energy measurements to said threat
21 reference threshold to identify areas of possible threats
22 indicated by the modified detected energy measurement of an
23 area exceeding said threat reference threshold.

1 ²³
13. The system of claim 12, wherein said means for
2 generating the threat reference threshold includes:

3 means for averaging the modified detected energy
4 values corresponding to a plurality of cells.

1 ¹³~~12~~. The system of claim 12, further comprising:
2 a display processor; and
3 a display, said display processor generating a visual
4 representation on said display of at least some of said
5 plurality of areas and indicating on said visual
6 representation areas having modified detected energy values
7 which exceed said threat reference threshold.

1 14. The system of claim 13, wherein said visual
2 representation includes distance information.

1 15. The system of claim 14, wherein a first display color
2 is used to mark areas of the visual representation
3 corresponding to areas having modified detected energy
4 values which exceed said threat reference threshold and a
5 second display color is used to mark areas having modified
6 detected energy values which are below said threat
7 reference threshold, said first and second colors being
8 different.

1 16. The system of claim 15, further comprising:
2 a receiver for receiving friend indicator signals from
3 said areas, said visual representation including a friend
4 indicator marker on display areas corresponding to an area
5 from which a friend indicator signal was received.

1 17. The system of claim 16, wherein said visual
2 representation includes a visual image of the physical

3 areas to which each visual representation image area
4 corresponds.

1 18. A method for facilitating detection of a threat, the
2 method comprising:

3 i) operating a transmitter to transmit signals in the
4 direction of a plurality of cells to pan a scene
5 corresponding to said plurality of cells;

6 ii) operating a receiver to detect reflected signals
7 during an analysis period received from said plurality of
8 cells, at least some of said cells being at different
9 distances from the receiver; and

10 iii) determining a threat reference threshold for the
11 analysis period as a function of the reflected signals
12 detected during the analysis period, said step of
13 determining a threat threshold including:

14 measuring detected reflected signals
15 corresponding to at least some of said plurality
16 of said cells to generate a measured signal value
17 for each particular one of said at least some
18 cells;

19 modifying the measured signal values
20 corresponding to some particular ones of said at
21 least some cells by a distance factor
22 corresponding to the distance the particular one
23 of the cells is from the receiver to generate a
24 modified measured signal value for each of said
25 some particular ones of said cells; and

26 generating the threat reference
27 threshold as a function of at least some of the
28 modified measured signal values.

1 19. The method of claim 18, wherein generating the threat
2 reference threshold includes:
3 averaging the modified measured signal values
4 corresponding to a plurality of cells in which at least one
5 human being is located; and
6 and establishing said threat reference threshold
7 from the generated average.

1 20. The method of claim 19, wherein the measured signal
2 values are energy values.

1 21. The method of claim 18, wherein said scene is an
2 outdoor scene.

1 22. The method of claim 28, wherein said scene is an
2 indoor scene.